WHAT IS CLAIMED IS:

1. A method of manufacturing a semiconductor device, comprising the steps of:

forming at least a light absorbing sacrificial film, which has an etching rate different from that of a photoresist and is removable by use of a stripping solution, on a semiconductor substrate so as to embed said film in a trench pattern in such a manner that the overall surface of said film will be flat, wherein the semiconductor substrate has been obtained by forming at least a first interlayer film, an etching stopper film, a second interlayer film, a first hard mask and a second hard mask on a substrate in the order mentioned, the second hard mask being formed to have the trench pattern, which exposes the first hard mask;

forming the photoresist on the light absorbing sacrificial film, said photoresist having an aperture pattern, which is disposed over the area of the trench pattern, having an opening width less than that of said trench pattern; and

selectively etching, one after the other, at least the light absorbing sacrificial film, the first hard mask and the second interlayer film using the photoresist as an etching mask.

2. A method of manufacturing a semiconductor device, comprising the steps of:

forming at least a sacrificial film, which has an etching rate different from that of a photoresist and is removable by use of a stripping solution, on a semiconductor substrate so as to embed said film in a trench pattern in such a manner that the overall surface of said film

will be flat, wherein the semiconductor substrate has been obtained by forming at least a first interlayer film, an etching stopper film, a second interlayer film, a first hard mask and a second hard mask on a substrate in the order mentioned, the second hard mask being formed to have the trench pattern, which exposes the first hard mask;

forming an anti-reflective film on the sacrificial film;

forming the photoresist on the anti-reflective film, said photoresist having an aperture pattern, which is disposed over the area of the trench pattern, having an opening width less than that of said trench pattern; and

selectively etching, one after the other, at least the anti-reflective film, the sacrificial film, the first hard mask and the second interlayer film using the photoresist as an etching mask.

3. A method of manufacturing a semiconductor device, comprising the steps of:

forming at least a light absorbing sacrificial film, which has an etching rate different from that of a photoresist and is removable by use of a stripping solution, on a semiconductor substrate so as to embed said film in a trench pattern in such a manner that the overall surface of said film will be flat, wherein the semiconductor substrate has been obtained by forming at least a cap film, a first interlayer film, an etching stopper film, a second interlayer film and a hard mask on a substrate in the order mentioned, the hard mask and the second interlayer film being formed to have the trench pattern, which exposes the etching stopper film;

forming the photoresist on the light absorbing sacrificial film,

said photoresist having an aperture pattern, which is disposed over the area of the trench pattern, having an opening width less than that of said trench pattern; and

selectively etching, one after the other, at least the light absorbing sacrificial film, the etching stopper film and the first interlayer film using the photoresist as an etching mask.

4. A method of manufacturing a semiconductor device, comprising the steps of:

forming at least a sacrificial film, which has an etching rate different from that of a photoresist and is removable by use of a stripping solution, on a semiconductor substrate so as to embed said film in a trench pattern in such a manner that the overall surface of said film will be flat, wherein the semiconductor substrate has been obtained by forming at least a cap film, a first interlayer film, an etching stopper film, a second interlayer film and a hard mask on a substrate in the order mentioned, the hard mask and the second interlayer film being formed to have the trench pattern, which exposes the etching stopper film;

forming an anti-reflective film on the sacrificial film;

forming the photoresist on the anti-reflective film, said photoresist having an aperture pattern, which is disposed over the area of the trench pattern, having an opening width less than that of said trench pattern; and

selectively etching, one after the other, at least the anti-reflective film, the sacrificial film, the etching stopper film and the first interlayer film using the photoresist as an etching mask.

5. The method according to claim 1, further comprising the step of removing the photoresist and the light absorbing sacrificial film from the semiconductor substrate using the stripping solution following the etching step.

6. The method according to claim 3, further comprising the step of removing the photoresist and the light absorbing sacrificial film from the semiconductor substrate using the stripping solution following the etching step.

7. The method according to claim 2, further comprising the step of removing the photoresist, the anti-reflective film and the sacrificial film from the semiconductor substrate using the stripping solution following the etching step.

8. The method according to claim 4, further comprising the step of removing the photoresist, the anti-reflective film and the sacrificial film from the semiconductor substrate using the stripping solution following the etching step.

9. The method according to claim 5, further comprising the step of forming an interconnect trench pattern and a via pattern using the first hard mask as an etching mask after a unit of the photoresist and light absorbing sacrificial film or a unit of the anti-reflective film and sacrificial film is removed from the semiconductor substrate.

10. The method according to claim 7, further comprising the step of forming an interconnect trench pattern and a via pattern using the first hard mask as an etching mask after a unit of the photoresist and light absorbing sacrificial film or a unit of the anti-reflective film and

sacrificial film is removed from the semiconductor substrate.

11. The method according to claim 1, wherein a dye-containing MSQ-based light absorbing sacrificial film, the main ingredient of which is MSQ, is used as the light absorbing sacrificial film.

12. The method according to claim 3, wherein a dye-containing MSQ-based light absorbing sacrificial film, the main ingredient of which is MSQ, is used as the light absorbing sacrificial film.

13. The method according to claim 4, wherein a dye-containing MSQ-based light absorbing sacrificial film, the main ingredient of which is MSQ, is used as the light absorbing sacrificial film.

14. The method according to claim 9, wherein a dye-containing MSQ-based light absorbing sacrificial film, the main ingredient of which is MSQ, is used as the light absorbing sacrificial film.

15. The method according to claim 2, wherein a SOG film is used as the sacrificial film.

16. The method according to claim 4, wherein a SOG film is used as the sacrificial film.

17. The method according to claim 7, wherein a SOG film is used as the sacrificial film.

18. The method according to claim 9, wherein a SOG film is used as the sacrificial film.

19. The method according to claim 15, wherein a polymer whose main ingredient is siloxane having a hydrogen group or alkyl group in a side chain, or a polymer whose main ingredient is a silsesquioxane-based compound, is used as the SOG film.

20. The method according to claim 1, wherein an inorganic insulator or organic insulator is used as the first interlayer film, and an inorganic insulator or organic insulator is used as the second interlayer film.

21. The method according to claim 20, wherein a polymer whose main ingredient is siloxane having a hydrogen group or alkyl group in a side chain, or a polymer whose main ingredient is a silsesquioxane-based compound, is used as the SOG film.

22. The method according to claim 20, wherein a polymer having an aromatic compound as its main ingredient is used as the organic insulator.

23. The method according to claim 1, wherein the same material is used as the first interlayer film and second interlayer film.

24. A semiconductor device serving as an intermediate product in which at least a first interlayer film, an etching stopper film, a second interlayer film, a first hard mask and a second hard mask are built up on a substrate in the order mentioned, said second hard mask having a trench pattern that exposes said first hard mask, comprising:

a light absorbing sacrificial film, which has an etching rate different from that of a photoresist and is removable by use of a stripping solution, formed so as to be embedded in the trench pattern in such a manner that the overall surface of said film will be flat; and

a photoresist formed on said light absorbing sacrificial film and having an aperture pattern, which is disposed over the area of the trench pattern, having an opening width less than that of said trench pattern.

25. A semiconductor device serving as an intermediate product in

which at least a first interlayer film, an etching stopper film, a second interlayer film, a first hard mask and a second hard mask are built up on a substrate in the order mentioned, said second hard mask having a trench pattern that exposes said first hard mask, comprising:

a sacrificial film, which has an etching rate different from that of a photoresist and is removable by use of a stripping solution, formed so as to be embedded in the trench pattern in such a manner that the overall surface of said film will be flat;

an anti-reflective film formed on said sacrificial film; and

a photoresist formed on said anti-reflective film and having an aperture pattern, which is disposed over the area of the trench pattern, having an opening width less than that of said trench pattern.

26. A semiconductor device serving as an intermediate product in which at least a cap film, a first interlayer film, an etching stopper film, a second interlayer film and a hard mask are built up on a substrate in the order mentioned, said hard mask and second interlayer film having a trench pattern that exposes said etching stopper film, comprising:

a light absorbing sacrificial film, which has an etching rate different from that of a photoresist and is removable by use of a stripping solution, formed so as to be embedded in the trench pattern in such a manner that the overall surface of said film will be flat; and

a photoresist formed on said light absorbing sacrificial film and having an aperture pattern, which is disposed over the area of the trench pattern, having an opening width less than that of said trench pattern.

27. A semiconductor device serving as an intermediate product in

which at least a cap film, a first interlayer film, an etching stopper film, a second interlayer film and a hard mask are built up on a substrate in the order mentioned, said hard mask and second interlayer film having a trench pattern that exposes said etching stopper film, comprising:

a sacrificial film, which has an etching rate different from that of a photoresist and is removable by use of a stripping solution, formed so as to be embedded in the trench pattern in such a manner that the overall surface of said film will be flat;

an anti-reflective film formed on said sacrificial film; and

a photoresist formed on said anti-reflective film and having an aperture pattern, which is disposed over the area of the trench pattern, having an opening width less than that of said trench pattern.